

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in this application:

LISTING OF CLAIMS:

Claims 1 to 15. (Canceled).

16. (Currently Amended) ~~The A~~ A projection viewing system according to ~~claim 42, comprising:~~

at least a first display device displaying a first image to be viewed by a first viewer and a second display device displaying a second image to be viewed by a second viewer,

at least a first projection optical system and a second projection optical system,

a diffusing plate, said diffusing plate comprising a transmission type hologram,
and

an eyepiece optical system, said eyepiece optical system comprising a concave mirror, wherein:

said first projection optical system projects an image appearing on said first display device in a first direction toward said first viewer and said second projection optical system projects an image appearing on said second display device in a direction different from said first direction toward said second viewer,

said diffusing plate is located near to images projected through said first and second projection optical systems,

said eyepiece optical system projects exit pupils of said first and second projection optical systems onto a viewer side, and

wherein zero-order light leaving said diffusing plate is kept from being incident on an exit pupil of said projection viewing system.

17. (Currently Amended) ~~The A~~ A projection viewing system according to ~~claim 42, comprising:~~

at least a first display device displaying a first image to be viewed by a first viewer and a second display device displaying a second image to be viewed by a second viewer,

at least a first projection optical system and a second projection optical system,
a diffusing plate, said diffusing plate comprising a transmission type hologram,
and
an eyepiece optical system, said eyepiece optical system comprising a concave mirror, wherein:
said first projection optical system projects an image appearing on said first display device in a first direction toward said first viewer and said second projection optical system projects an image appearing on said second display device in a direction different from said first direction toward said second viewer,
said diffusing plate is located near to images projected through said first and second projection optical systems,
said eyepiece optical system projects exit pupils of said first and second projection optical systems onto a viewer side, and
wherein zero-order light leaving said diffusing plate propagates toward an exit pupil position of said projection viewing system, and is incident on a portion of said exit pupil spaced away from a center of said exit pupil at a distance of at least 1/2 of the diameter of said exit pupil.

Claim 18. (Canceled).

19. (Currently Amended) ~~The A~~ A projection viewing system according to claim 18, comprising:

at least a first display device displaying a first image to be viewed by a first viewer and a second display device displaying a second image to be viewed by a second viewer,
at least a first projection optical system and a second projection optical system,
a diffusing plate, said diffusing plate comprising a transmission type hologram,
and
an eyepiece optical system, said eyepiece optical system comprising a concave mirror, wherein:
said first projection optical system projects an image appearing on said first display device in a first direction toward said first viewer and said second projection

optical system projects an image appearing on said second display device in a direction different from said first direction toward said second viewer,

said diffusing plate is located near to images projected through said first and second projection optical systems,

said eyepiece optical system projects exit pupils of said first and second projection optical systems onto a viewer side,

said diffusing plate has a flexion action by diffraction, and
which further satisfies the following condition is satisfied:

$$\gamma > 1^\circ \quad \dots (7)$$

where γ is a d-line angle of flexion of an optical axis by said diffusing plate.

20. (original) The projection viewing system according to claim 19, which further satisfies the following condition:

$$\gamma < 45^\circ \quad \dots (8)$$

where γ is the d-line angle of flexion of an optical axis by said diffusing plate.

21. (Currently Amended) The A projection viewing system ~~according to claim 42, comprising:~~

at least a first display device displaying a first image to be viewed by a first viewer and a second display device displaying a second image to be viewed by a second viewer,

at least a first projection optical system and a second projection optical system,

a diffusing plate, said diffusing plate comprising a transmission type hologram,
and

an eyepiece optical system, said eyepiece optical system comprising a concave mirror, wherein:

said first projection optical system projects an image appearing on said first display device in a first direction toward said first viewer and said second projection optical system projects an image appearing on said second display device in a direction different from said first direction toward said second viewer,

said diffusing plate is located near to images projected through said first and second projection optical systems,

said eyepiece optical system projects exit pupils of said first and second projection optical systems onto a viewer side, and

wherein a difference in an angle of diffraction of an optical axis by said diffusing plate between 700 nm wavelength light and 400 nm wavelength light is up to 18°.

22. (Currently Amended) The A projection viewing system according to claim 42, comprising:

at least a first display device displaying a first image to be viewed by a first viewer and a second display device displaying a second image to be viewed by a second viewer,

at least a first projection optical system and a second projection optical system,

a diffusing plate, said diffusing plate comprising a transmission type hologram, and

an eyepiece optical system, said eyepiece optical system comprising a concave mirror, wherein:

said first projection optical system projects an image appearing on said first display device in a first direction toward said first viewer and said second projection optical system projects an image appearing on said second display device in a direction different from said first direction toward said second viewer,

said diffusing plate is located near to images projected through said first and second projection optical systems,

said eyepiece optical system projects exit pupils of said first and second projection optical systems onto a viewer side, and

wherein, at a position of the exit pupil of said projection viewing system, a difference in a position of incidence between a 700 nm wavelength optical axis and a 400 nm wavelength optical axis is up to 1/2 of a diameter of said exit pupil.

23. (Currently Amended) The A projection viewing system according to claim 42, comprising:

at least a first display device displaying a first image to be viewed by a first viewer and a second display device displaying a second image to be viewed by a second viewer,

at least a first projection optical system and a second projection optical system,

a diffusing plate, said diffusing plate comprising a transmission type hologram,
and

an eyepiece optical system, said eyepiece optical system comprising a concave mirror, wherein:

said first projection optical system projects an image appearing on said first display device in a first direction toward said first viewer and said second projection optical system projects an image appearing on said second display device in a direction different from said first direction toward said second viewer,

said diffusing plate is located near to images projected through said first and second projection optical systems,

said eyepiece optical system projects exit pupils of said first and second projection optical systems onto a viewer side, and

which further satisfies the following condition is satisfied:

$$0^{\circ} < \beta < 45^{\circ} \quad \dots (9)$$

where β is an angle of incidence of a d-line optical axis on said concave mirror.

24. (Currently Amended) ~~The A~~ A projection viewing system ~~according to claim 42, comprising:~~

at least a first display device displaying a first image to be viewed by a first viewer and a second display device displaying a second image to be viewed by a second viewer,

at least a first projection optical system and a second projection optical system,

a diffusing plate, said diffusing plate comprising a transmission type hologram,
and

an eyepiece optical system, said eyepiece optical system comprising a concave mirror, wherein:

said first projection optical system projects an image appearing on said first display device in a first direction toward said first viewer and said second projection optical system projects an image appearing on said second display device in a direction different from said first direction toward said second viewer,

said diffusing plate is located near to images projected through said first and second projection optical systems,

said eyepiece optical system projects exit pupils of said first and second projection optical systems onto a viewer side, and

~~which further satisfies~~ the following condition is satisfied:

$$0.01 < \gamma/\beta < 1,000 \quad \dots (10)$$

where γ is an angle of flexion of a d-line optical axis by said diffusing plate, and β is an angle of incidence of a d-line optical axis on said concave mirror.

Claims 25 to 33. (Canceled).